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The Archean is succeeded by what the author calls the Eparchean,¹ which he says may be called also the

Banded Ironstone Series, from the usual name of their principal member. The characteristic feature of these beds is the peculiar banded, flinty rock, which appears under the microscope to be in all probability an altered, fine-grained, mechanical sediment silicified and highly charged with ferruginous material, arranged in parallel bands. They alternate with sheared conglomeratic and arenaceous beds, slates (phyllites), and gneissic bands, which may result either from the crushing of acid intrusives or of tuffs. These beds are usually almost vertical. . . .

Any American geologist will notice the resemblance of this series to the Algonkian or Proterozoic. The term Eparchean is inadmissible since Lawson has used it for the erosion interval at the base of the Algonkian.²

The presence in Rhodesia of Paleozoic below the Permian is doubtful. The latter is a flat coal-bearing, non-marine series of sandstone, shale, conglomerate, and occasional limestone. The coal promises to be of economic importance. Mesozoic strata are absent.

The Tertiary ("Forest Sandstone") consists of red and white sandstone, with occasional conglomeratic or gravelly beds, bands of shale, or impure limestone, and great quantities of interbedded basaltic lava. The author believes that the sedimentary beds are in large part the result of aggradation in an arid climate. Though he constantly refers to them as lacustrine, his description would accord well with a subaerial origin. The description and photograph (Fig. 8) of the "schist country on the plateau" are strongly suggestive of a peneplain, though it is not described as such.

C. W. W.

Recent Changes in Level in Yakutat Bay Region, Alaska. By RALPH S. TARR AND LAWRENCE MARTIN. (Bulletin of the Geological Society of America, Vol. XVII, pp. 29-64, 1906.) Pls. 12-23.
Recent Changes of Level in Alaska. Reprint from *The Geographical Journal*, July, 1906, pp. 30-43.

No proof of recent shore elevation could be more complete and convincing than that presented by the authors in these papers. Their physiographic evidences are: elevated rock benches, elevated sea caves and

¹ In the Correlation Table (p. 24) this is included in the Archean, though separated in the text (p. 11).

² Andrew C. Lawson, "The Eparchean Interval: A Criticism of the Use of the Term Algonkian," *University of California, Bull. Dept. Geology*, Vol. 3, No. 3, Berkeley, Cal., 1902.

chasms, elevated beaches, elevated alluvial fans or deltas, till shore-lines, new reefs and islands, and reclaimed land. The biological evidences are: elevated barnacles, mussels, bryozoans, and other marine organisms, still fresh, with the attached forms clinging to the rocks; also the mingling of land and sea life, parallel lines of stranded driftwood, and destruction of life. There is even human evidence of the uplift: two careful students of old shore-lines, Russell and Gilbert, examined the shores of the bay on parts of the coast where uplifted shore-lines are clearly preserved, the former geologist in 1890 and 1891, the latter in 1899, but three months before the earthquake, yet neither observed any evidence of elevation; the ship of the Harriman expedition, which carried Gilbert, sailed close by the uncharted reefs produced during the earthquake, but the sailing master did not see them; natives on various parts of the bay were disturbed by the earthquake and waves; and they observed many of the phenomena of elevation. In 1905 the authors found alders, not over 4 years old, growing in the rock crevices among barnacles 17 feet above high tide. This array of evidence seems to leave no doubt that changes in level were produced during the earthquakes of September, 1899.

The change of level with reference to the sea was considerable, reaching a maximum of 47 feet, 4 inches. This diastrophism is clearly normal faulting of block type, many of the faults having been observed in the field. With reference to sea-level, one block was depressed; the largest block, about 25 miles long, was raised with differential elevation; the others were not tilted, so far as observed.

It is interesting to note that this contribution by Messrs. Tarr and Martin has a pertinent bearing on the Suess theory of general downward movement in normal faulting, in that they have shown (1) that during earthquakes in September, 1899, fault blocks were separately and differentially elevated, with reference to sea-level; and (2) no withdrawal of the sea from other parts of the coast was observed at that time.

C. W. W.

Notes sur la tectonique de la plateforme cristalline de la Russie méridionale. (Text in Russian, summary in French.) By W. LASKAREW. Separate from Tome XXIV, *Bulletins du comité géologique*, No. 110. St. Petersburg, 1905.

The region described is a dissected platform of paleozoic and older rocks extending from the Sea of Azov to the Carpathian Mountains. The platform is practically a great horst bounded on all sides by faults. The Podolian horst described by Suess lies on its northwest border. The faults